APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,290	06/19/2001	Thomas Markson	55218-0519	3062

45657   7590   08/17/2007
HICKMAN PALERMO TRUONG & BECKER, LLP
AND SUN MICROSYSTEMS, INC.
2055 GATEWAY PLACE
SUITE 550
SAN JOSE, CA 95110-1089

EXAMINER
TODD, GREGORY G

ART UNIT	PAPER NUMBER
2157	

MAIL DATE	DELIVERY MODE
08/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No.	Applicant(s)
	09/885,290	MARKSON ET AL.
	Examiner	Art Unit
	Gregory G. Todd	2157

All participants (applicant, applicant's representative, PTO personnel):

(1) _Gregory G. Todd_.　　　　　　　　　　(3)_____.

(2) _Craig Holmes_.　　　　　　　　　　　(4)_____.

Date of Interview: _08 August 2007_.

Type:　a)☒　Telephonic　b)☐　Video Conference
　　　　c)☐　Personal [copy given to:　1)☐ applicant　　2)☐ applicant's representative]

Exhibit shown or demonstration conducted:　d)☒ Yes　　e)☐ No.
　　If Yes, brief description: _Agenda_.

Claim(s) discussed: _1_.

Identification of prior art discussed: _Blumenau_.

Agreement with respect to the claims f)☐ was reached.　g)☐ was not reached.　h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: _See Continuation Sheet_.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached.　Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04).　If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.　See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note:　You must sign this form unless it is an Attachment to a signed Office action.	Examiner's signature, if required
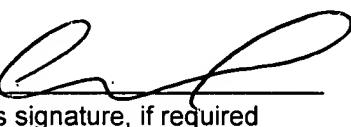
Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant clarified some issues with the Examiner with regard to claim 1 specifically. The control processor is a 'separate' device than the gateway device, not just different, as different could still encompass being included within the device. Also, the gatekeeper device of Blumenau, while being a logical volume, the claims do not necessitate being a physical device, as such,.the Examiner recommended clarification in the claims. Examiner believes the discussed and proposed amendments to read over Blumenau .

HICKMAN PALERMO TRUONG & BECKER LLP
2055 GATEWAY PLACE, SUITE 550
SAN JOSE, CALIFORNIA 95110-1089
TEL: (408) 414-1080
FAX: (408) 414-1076

FACSIMILE TRANSMITTAL SHEET

TO: Examiner Gregory Todd	FROM: Craig G. Holmes
COMPANY: U.S.P.T.O.	DATE: AUGUST 1, 2007
FAX NUMBER: 571-273-4011	TOTAL NO. OF PAGES INCLUDING COVER: 6
PHONE NUMBER: 571-272-4011	SENDER'S REFERENCE NUMBER: 55218-0519
RE: Interview Request Form and AGENDA with Summary of Arguments and Proposed Claim Amendments	YOUR REFERENCE NUMBER: 09/885,290

☐ URGENT   ☑ FOR REVIEW   ☐ PLEASE COMMENT   ☐ PLEASE REPLY   ☐ PLEASE RECYCLE

Per the Examiner's request earlier today, please find attached an Applicant Initiated Interview Request Form for the interview with by the Applicant's representative, Craig Holmes, who can be reached at (408) 414-1207, to be held on **Wednesday, August 8, 2007, at 2:00 PM EST (11:00 AM PST)**.

Please see the enclosed "Applicant Initiated Interview Request Form, along with the attached "Summary of Arguments to be Presented and Proposed AGENDA for Examiner Interview." including the proposed claim amendments for Claim 1.

Respectfully submitted,

Craig Holmes
Reg. No. 44,770

Applicant Initiated Interview Request Form

Application No.: *09/885,290*   First Named Applicant: *Thomas Markson et al.*
Examiner: *Gregory G. Todd*   Art Unit: *2157*   Status of Application: *non-final OA mailed 6/1/07*

Tentative Participants:
(1) *Gregory Todd*   (2) *Craig Holmes*

(3)_____   (4)_____

Proposed Date of Interview: *Wed Aug. 8 2007*   Proposed Time: *2:00* (AM/**PM**) *EST*
(11:00 AM PST)

Type of Interview Requested:
(1) [X] Telephonic   (2) [ ] Personal   (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES   [ ] NO
If yes, provide brief description:_____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) *Rej. 102(e)*	*1*	*Blumenau*	[ ]	[ ]	[ ]
(2)_____	_____	_____	[ ]	[ ]	[ ]
(3)_____	_____	_____	[ ]	[ ]	[ ]
(4)_____	_____	_____	[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached

Brief Description of Arguments to be Presented:

Please see attached sheet for Agenda & Issues.

_____

An interview was conducted on the above-identified application on _____.
NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.
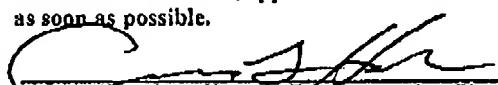
_____   _____
Applicant/Applicant's Representative Signature   Examiner/SPE Signature
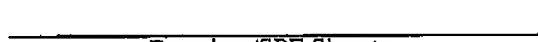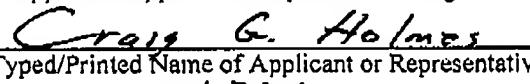
Craig G. Holmes
Typed/Printed Name of Applicant or Representative
44,770
Registration Number, if applicable

Proposed <u>AGENDA</u> for Examiner Interview

A. The "gateway device" of Claim 1 is not the same as *Blumenau's* "gatekeeper".

Claim 1 includes a "gateway device," such as a Pathlight gateway from Pathlight Technology, Inc., as described in the Application. (See page 20, lines 8-10; page 28, lines 1-3; a current example of which can be seen at http://www.infomrt.com/pathlight/productsmain.html).

In the drawings of the Application, the "gateway" is an actual, physical device, such as storage gateway 306 of the embodiments shown in FIGs. 3A, 3B, 5A, and 5A, the storage area network gateway 210 of FIG. 2A, and the gateways 306D, 306E, etc., of FIG. 4C.

Thus, a "gateway device" as featured in Claim 1 and supported by the Application, would be understood to be an actual, physical hardware device.

In contrast, *Blumenau's* "gatekeeper" is not a physical device, but rather a **logical** *volume.* Specifically, *Blumenau* first describes the "gatekeeper" as "predefined logical volume, such as a volume accessed at LUN0, that functions as a gatekeeper device." (Col. 31, lines 23-26.) *Blumenau* consistently refers to the "gatekeeper" as a logical volume, and often uses the more accurate phrase of "gatekeeper facility." (See, Col. 32, lines 19-20; Col. 33, lines 39-40 and 53; Col. 34, line 7 and 40; Col. 35, lines 37 and 53; Col. 36, line 23, et seq.) In fact, the Office Action refers to this definition of the "gatekeeper" being a logical volume in the "Response to Arguments" portion of the Office Action (see page 15, lines 3-4).

More significantly, in the depictions of the hardware arrangements in *Blumenau's* figures, such as Figures 1-4, 21-22, and 32, the "gatekeeper" is *never shown* nor referred to with a label number within the text of *Blumenau*. This is consistent with the "gatekeeper" being a logical volume or facility of the storage subsystem.

The Applicant does note that the introduction of the "gatekeeper" in Column 31 of *Blumenau* uses the phrase "gatekeeper device." However, this is the only occurrence in *Blumenau* of the "gatekeeper" being referred to as a "device." Given the definition of the "gatekeeper" and the use and description of the "gatekeeper" elsewhere within *Blumenau*, the Applicant respectfully submits that the "gatekeeper" in *Blumenau* would be most reasonably understood to be a *logical* volume for controlling access, not an actual, physical hardware device such as a "gateway device" as in Claim 1.

1

B. **Because *Blumenau's* "gatekeeper" is a logical volume, *Blumenau's* "gatekeeper" cannot include a "control processor" that configures itself.**

The rejection of Claim 1's feature of "the control processor configuring a gateway device to map the one or more logical units to the host processor" is based upon Col. 32, line 13 – Col. 33, line 17, in which the Office Action explains as follows: "allocated and assigning LUN, the control processor being a part of the gateway device/gatekeeper and configuring itself."

However, as noted in the first issue above, *Blumenau's* "gatekeeper" is defined to be a "logical volume" that is accessed at LUN0, and a logical volume cannot include a "control processor," which is a physical device, not a logical device. And while the logical volume at LUN0 corresponds to a physical volume, that volume is a portion of storage on a storage device, and therefore again cannot include a "control processor."

Finally, Claim 1 includes several steps or actions that are performed by the "control processor," namely "the control processor receiving a request...," "the control processor associating one or more logical units..." by "the control processor configuring a gateway device..." and "the control processor configuring the one or more storage units...." Even if the control processor were assumed to be part of the logical volume that *Blumenau* refers to as the "gatekeeper," there is nothing in the cited portions of Blumenau or elsewhere that such a hypothetical control processor performed the recited actions.

C. **Proposed Amendments to Claim 1**

The Applicant appreciates the Office Action's explanation in the "response to arguments" portion regarding the Examiner's interpretation of "does not know" and the associated discussion of Blumenau and how that reference was being interpreted.

As a result, the following claim amendments are proposed by the Applicant to clarify that the host processor accesses the logical units despite the host processor's lack of knowledge of which logical units are associated with the host processor by the control processor. Therefore, in the approach of Claim 1, not only does the host processor not know which logical units are associated with the host processor , but the host processor accesses those logical units without know which logical units are being accessed.

This is in contrast to the approach in *Blumenau* in which "the host **must** be programmed to seek out the LUNs that it can access" (Col. 32, lines 21-23; emphasis added), the "host operating system invokes the mapping driver to obtain the LUNs accessible to it" (Col. 32, lines 29-31), and the "nonvolative memory must store a complete path to the boot volume, including the SCSI address to be used by the host as well as the storage subsystem WWN and LUN. (Col. 33, lines 6-9.)

2

1. **(Proposed Amended)** A computer-implemented method of allocating storage to a host processor, comprising:

a control processor receiving a request to allocate storage to the host processor; and

the control processor associating one or more logical units from among one or more storage units to the host processor by:

the control processor configuring a gateway device to map the one or more logical units to the host processor;

the control processor configuring the one or more storage units to give the host processor access to the one or more logical units;

~~wherein the host processor does not know which one or more logical units are associated with the host processor;~~

<u>the host processor accessing the one or more logical units, which are associated with the host processor by the control processor, without the host processor knowing which of the one or more logical units from among the one or more storage units are associated with the host processor;</u>

wherein the control processor is a different device than the gateway device, the host processor, and the one or more storage units; and

wherein the gateway device is a different device than the control processor, the host processor, and the one or more storage units.

D.   The Issues Above Explain and Highlight the Fundamental Differences Between the Approach of Claim 1 and *Blumenau*

While the Applicant's claims/Application and the prior art of *Blumenau* are both using the concept of "virtualization" in regards to storage systems, which in both involves some sort of mapping of something "virtual" to something "physical," the two take two fundamentally different approaches.

In the Applicant's claims and specification, the virtualization is of the "storage layer," such as virtual storage layer 310 of FIG. 3A, which includes storage gateway 306 and storage networks 308, through which hosts 302A, etc., access storage units 304A, etc. Through the use of storage gateway devices, the hosts can access storage without knowing which logical or physical storage units are being accessed. This approach addresses the prior art limitations of not being able to dynamically or automatically add and remove storage from a particular host or server without having to require that the host be re-booted so that its operating system becomes aware of the changed storage configuration. (See the Background section, pages 3-4 of the Application). As a result, the host processor in the approach of Claim 1 accesses storage without the knowledge of which logical units are being accessed, as the lack of that knowledge is made up for by the gateway device that associates the LUNs with the appropriate hosts

3

and storage units. Thus, the gateway device is performing a physical switching function to connect hosts with storage.

In contrast, *Blumenau* is virtualizing ports and routing storage requests with a virtual switch within the storage controller, with virtual ports being assigned to hosts and the set of storage volumes being accessible from each virtual port. (Abstract.) *Blumenau* is addressing the problem of having to physically switch links to the network ports of the hosts to ensure that a host is restricted to accessing a limited number of logical volumes, thereby ensuring security so that other hosts are not able to access logical volumes of others when using a consolidated storage subsystem without the use of high-level authentication and authorization procedures. (Col. 1, lines 40-45, 59-67; Col. 2, lines 1-31.) Thus, a host in *Blumenau's* approach uses a port address as normal, although the port address being used is that of a virtual port that is later mapped to a physical port. Yet even with the use of such virtual ports, *Blumenau's* approach requires that the host know the logical units are being accessed by the host. And in Blumenau's approach, the switching is not in hardware, but rather in software through the use of the virtual ports and a virtual switch, such as virtual ports 240, 241 and virtual switches 238, 239 of Figure 21. But in fact, the "virtual switches" in Blumenau are just logical objects, not physical, to describe the operation of the microprocessor in handling Fibre Channel requests. (Col. 23, line 60 – Col. 24, line 3.)

4